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CENTRAL INTELLIGENCE GROUP INTELLIGENCE REPORT

COUNTRY China

DATE: 25X1X6

SUBJECT Economic Information: Highways, Shantung

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ORIGIN [REDACTED]

25X1X6

SUPPLEMENT

1. Highway Routes

1. For purposes of highway control, Shantung Province is divided into seven sections, as follows:

a. Tsingtao-Chefoo-Jungcheng (122-32,37-22) section, composing the eastern tip of the province. All territory east of a line from Chefoo to Chihsia (120-49,37-17), to Laiyang (120-42,36-57) to Tsingtao.

b. Tsingtao-Chefoo-Weihsien (119-07,36-43) section, the area east of a north-south line from the Gulf of Chihli to Weihsien north of the Chiaochi Railroad /Tsingtao-Tsinan Railroad/ to the western boundary of Tsingtao-Chefoo-Jungcheng section.

c. Tsinan-Wutung-(117-30,37-30) Weihsien section, the area east of Tientsin-P'uk'ou (118-44,32-06) Railroad from Tehsien (116-17,37-27) to Tsinan, and north of the Chiaochi Railroad to the boundary of Shantung Province.

d. Tsinan-Tehsien-Linch'ing (115-42,36-51) section covers the western section of the province west of the /Tehsien-Tsinan section of the/ Tientsin-P'uk'ou Railroad, and north of the Yellow River, to the western boundary of Shantung Province.

e. Tsinan-Tzu yan (Yenchou) (116-54,35-36)-Hotse (Tsaochou) (115-32,35-16) section takes in the western part of the province west of the /Tsinan-Lancheng section of the/ Tientsin-P'uk'ou Railroad, and north of the Yellow River, to the western boundary of Shantung Province.

f. Tsinan-Itu-(118-28,36-43) Linch'eng section covers the area east of the Tientsin-P'uk'ou Railroad from Tsinan to Linch'eng and east of the spur railroad line from Linch'eng to T'ai'erhchuang on the southern boundary of Shantung Province, east to a line drawn from T'ai'erhchuang to Lin (118-24,36-07) to Ishui (118-40,35-48) to Linch'u (118-34,36-32) to Itu and south of the Chiaochi Railroad.

g. T'ai'erhchuang-Kaomi-(119-46,36-24) Weihsien section. This is the south-east part of the province east of the eastern boundary of the Tsinan-Itu-Linch'eng section, east to the Yellow Sea, and south of the Chiaochi Railroad to the southern boundary of Shantung Province.

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- 2 -

2. There are twelve main highways in Shantung Province. Their names and locations are as follows:

a. Tahan Highway runs along the Shantung section of the Tientsin-P'uk'ou Railroad from Tehsien to Manchuan (117-27,34-41) via P'ingyuan (116-25,37-11), Yuch'eng (116-38,36-57), Tsiho (Chiho, 116-46,36-44), Tsinan, Changhsia (116-54,36-28), Taian (117-09,36-13), Chufou (117-03,35-39), Tzuyang (116-54,35-36), and Linch'eng (117-20,34-52).

b. Chiaochi Highway, from Tsingtao to Tsinan via Ch'engyang (120-24,36-18), Chiaohsien (120-00,36-17), Kaoni (119-46,36-24), Weihsien, Ch'anglo (118-48,36-42), Itu, Changtien (118-02,36-51), Chouts'un (117-43,36-48), and Changch'iu (117-29,36-51), along the Chiaochi Railroad. [REDACTED] Note: This highway had been temporarily repaired to accommodate all-weather traffic, prior to the Communist activities of 6 and 7 June 1946.

c. Liho Highway, from Liching (118-15,37-29) to Hotse (Tsaochou) via Ch'ing-ch'eng (117-40,37-13), Tsinan, Chiho (116-46,36-44), Shouchang (115-52,36-02), Fanhsien (115-38,35-56), and Puhsien (115-25,35-43); on the south bank of the Yellow River from Tsinan to Liching and on the north bank of the Yellow River from Tsinan to Hotse. [REDACTED] Note: This highway, considered a trunk line, is reported to have been damaged over the complete route by the Communists. Source states that, should the Communists allow it, the entire road could be made ready for use within two weeks.)

d. Huanhai Highway, from Chefoo to Antungwei (119-25,35-07) via Poup'ing (121-37,37-24), Weihaiwei (122-05,27-31), Jungch'eng (122-32,37-22), Shihtao (122-25,36-53), Tenteng (122-01,37-12), Haiyang (121-14,36-43), Chimo (120-29,36-24), Chengyang (120-22,36-18), Chiaohsien, Lingshamwei (120-11,35-56), and Jihchao (119-30,35-26); along the coast of the Shantung Peninsula. This highway is considered a trunk line from Chefoo to Chimo. From Chimo to Ch'engyang, a short road joins the trunk line to Chiaochi Highway and uses this highway from Ch'engyang to Chiaohsien. From Chiaohsien south to Antungwei is considered a trunk line.

e. Yenwei Highway, a trunk line from Chefoo to Weihsien via P'englai (120-45,37-50), Huanghsien (120-32,37-38), Lungk'ou (120-20,37-40), Yehnsien (119-46,37-11), and Ch'angi (119-25,36-52). At present this road is impassable.

f. Tsingtao-Chefoo Highway, via Ch'engyang, Chimo, Haiyang, and Ch'ihhsia. This highway uses the Chiaochi Highway route from Tsingtao to Ch'engyang. A short highway joins Ch'engyang and Chimo. From Chimo north to Chefoo, the highway is considered a trunk line.

g. T'aiwei Highway, from T'aierhchuang to Weihsien, via Lini, Chuhsien (118-52,35-36), Chuch'eng (119-27,36-00) and Anch'iu (119-12,36-26). A trunk line is used from T'aierhchuang to Anch'iu.

h. Ilin Highway, from Itu to Lini, via Ishui (118-40,35-48) and Linch'u (118-34,36-32). This highway is also considered a trunk line.

i. Tzulin Highway, from Tzuyang (116-54,35-36), Lini via Chufou, Ssushui (117-16,35-41) and Feihhsien (117-59,35-16). From Chufou to Lini this road is considered a trunk line.

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- 3 -

j. T'aishih Highway, from T'ai'an (117-09,36-12) to Shihchiuso (119-35,35-23) via Hsint'ai (117-49,35-56), Mengyin (117-53,35-42), Ishui, Chuhsien, and Jinchao. This entire route is considered a trunk line.

k. Yents'ao Highway, from Yenchow (Tzuyang) to Ts'aochow (Hotse) via Chining (116-37,35-27), Chiehshiang (116-23,35-28), and Chuyeh (116-11,35-26). The entire route is considered a trunk line.

l. Tsilin Highway, from Tsinan to Linch'ing via Chiho (116-46,36-44), Kaot'ang (116-13,36-53) and Ch'ingp'ing (116-04,36-45). From Chiho to Ch'ingp'ing is considered a trunk line.

3. The highways in the immediate vicinity of Tsinan are all in passable condition, but without exception are in need of extensive repair.

B. Plans for the Restoration, with materials from the Relief Association, of Highways Mapped out by the Shantung Provincial Highway Administration

1. General Situation of Highways

a. Before the war the length of the highways in Shantung was more than 10,000 kilometers. Those lines along which there were stations and on which cars traveled were about 6,500 kilometers in length.

b. At the conclusion of World War II most of the highways in Shantung were destroyed by the Communists. Road foundations were broken up and nearly all bridges were leveled. The Shantung Provincial Highway Administration is now making preparations for the restoration of the whole group of lines, but a lack of funds will delay the execution of the project. In view of urgent traffic needs, everything possible is being done to level roads to a point where they will carry automobile traffic. The lines along which cars traveled previous to 2 May are as follows:

- (1) Tsingtao-Tsinan Line
- (2) Tsinan-Tehchow (Tehsien) (116-17,37-27) Line
- (3) Chining-Yenchow (Tzuyang) (116-54,35-36) Line
- (4) Tsinan-Ch'angch'ing (116-44,36-36) Line
- (5) Tsingtao-Chimo (120-29,36-24) Line
- (6) Chining-Yench'eng (116-44,36-40) Line
- (7) Changtien-(118-02,36-47) Poshan (117-51,36-30) Line

2. Construction Schemes

a. Mileage:

- | | |
|---------------------|------------|
| (1) Main lines | 3,960 km. |
| (2) Secondary lines | 1,870 km. |
| (3) Branch lines | 4,950 km. |
| Total | 10,780 km. |

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As the Administration has not yet received orders from the Central Government to classify them as national and provincial highways, the above roads are all considered provincial highways, to be reconstructed by the Administration.

b. Kinds of Work and Unit Prices: (Only labor days are computed)

(1) The earth-work of the roads, destroyed to a great extent, is said to consist approximately of 1,500 cubic meters in every kilometer. This work, considered as restoration, will be performed by men on labor relief. If one man can work an estimated 2 cubic meters a day, one kilometer will require 750 labor days. If rolling, which takes 50 days per kilometer, is included, one kilometer will require 800 labor days. The length of the whole provincial highway network - 10,730 kilometers - will require approximately 143,000 men and soldiers, each working a period of sixty days.

(2) The preliminary survey, with inspection fees, will amount to \$20,000 per kilometer. The surveying will require 40 transits, an equal number of levels, 130,000 shovels, and 10,000 pickaxes.

(3) All bridges, except culverts and small bridges, (including over-flow bridges and river-bed pavements) will be built of reinforced concrete wherever possible. This work will be carried out in accordance with regulations of the Ministry of Communication, which provide that the net width of a bridge surface must be four meters, the bridge must be capable of carrying a fifteen-ton car, and the river-bed pavement must be 6 meters wide.

Imported materials:

Cement	9 barrels
Steel reinforcement	150 kilograms
Timber	700 B.M. (Board measure?)

Native materials:

Sand 2.5 cubic meters (4 days required for screening and transporting 1 cubic meter) 10 days

Gravel 5 cubic meters (6 days for picking and transporting 1 cubic meter) 30 days

Labor:

Carpenters, masons, and coolies per meter 120 days

Fee for transporting imported materials 240 days

Among the materials mentioned above, cement, steel reinforcement, timber, etc., are lacking in the interior of the province. As it is impossible for the Association to procure them, it hopes that these will be supplied directly from the Relief Association. The labor for building one meter of the above-mentioned bridges will require 380 days.

(4) The labor and materials required for paving one meter of river-bed road are as follows:

Imported materials:

Cement	1.5 barrels
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Timber 30 B.M.

Transportation of native materials:

Broken stones - cubic meters (8 days per c.m.)	24 days
Sand 1 c.m. (4 days per c.m.)	4 "
Stone 1 c.m. (6 days per c.m.)	6 "
Lime 600 kilograms (excluding cost of material)	3 "
Transportation fee (per c.m. in miles)	26 "
Labor	35 "

To pave one linear meter of river-bed road will require 35 days.

(5) More native than imported materials will be used in the construction of office buildings and workshops at various stations and divisions. To erect one square meter of these buildings will require six days time and the following materials:

Imported materials:

Cement	0.2 barrel
Timber	30 B.M.
Ironware	1.5 kilogram

Native materials:

Broken stone 1 c.m. (8 days per c.m.)	8 days
Bricks 400 pieces	(To the cost of transporting these
Tiles 25 "	materials would be added the actual
Lime 100 "	cost of the materials.) 3 days

Imported materials:

Transportation	6 days
Labor per sq. meter	6 days

The total labor per square meter will require 23 "

(6) Along the highways will be placed kilometer signs, warning signs, station and bridge signs, etc. Labor and transportation will require 10 days per kilometer; twenty-five kilograms of reinforcement and 0.5 barrel of cement will be used.

(7) Trees are to be planted in winter by farmers in their leisure time. Approximately 500 trees will be planted per kilometer. The time required will be twenty-five days.

(8) Imported materials, tools, and surveying instruments have been requested from the Relief Association, as well as the contribution of wages or provisions, or both, according to current prices.

3. Automobiles and Fuel

There were 400 passenger cars and 350 trucks in this province before the war. The administration must have at its disposal at least as many passenger cars and trucks as before the war and a sufficient quantity of fuel. No repairs have been made on most of the roads; however, surface paving would make them usable.

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4. Assemblage and Repairs

For assemblage and repair, and for the improvement of communications facilities in general, Tsinan, Weihsien, Tsingtao, and Yenchow are to have one workshop each. These shops will be constructed in four periods of three months each during 1946 and 1947. In Tsinan and Tsingtao the need for such shops is acute.

5. Conclusions

A study of the foregoing shows the materials, instruments, tools, and automobiles which will be necessary for the restoration of the highways in Shantung.

a. Construction work:

(1) Costs and labor:

(a) Surveying and inspection fee	CNC 215,600,000
(b) Number of laborers on relief this year	15,098,413
(c) Number of laborers on relief next year	5,942,450
Total laborers	21,040,863

(2) Imported materials:

(a) Cement (this year) 112,579 barrels	
(next year) 125,965 "	238,541 barrels
(b) Reinforcement (this year) 1,308 m. tons	
(next year) 1,775 "	3,083 m. tons
(c) Timber (this year) 8,015,930 B.M.	
(next year) 8,253,000 "	16,268,930 B.M.

(3) Native materials:

(a) Bricks (this year) 24,810,000 pieces	
(next year) 3,700,000 "	28,510,000 pieces
(b) Tiles (this year) 1,550,000 "	
(next year) 230,000 "	1,780,000 "
(c) Lime (this year) 16,463 m. tons	
(next year) 10,705 "	27,168 m. tons
(d) Ironware (this year) 93,047 kilograms	
(next year) 13,775 "	106,922 kilograms
(e) Young trees (this year) 5,390,000	5,390,000

(4) Instruments and tools:

(a) Transits	40
(b) Levels	40
(c) Shovels	130,000
(d) Pickaxes	10,000

(5) Cars and fuel:

(a) Passenger cars	400
(b) Trucks	300
(c) Gasoline	375,000 gal. per month

(6) Assemblage and repairs:

(a) Total number of machines to be purchased and/or installed:	
1946: 643	1947: 150
(b) Number of days required for installation:	3,500

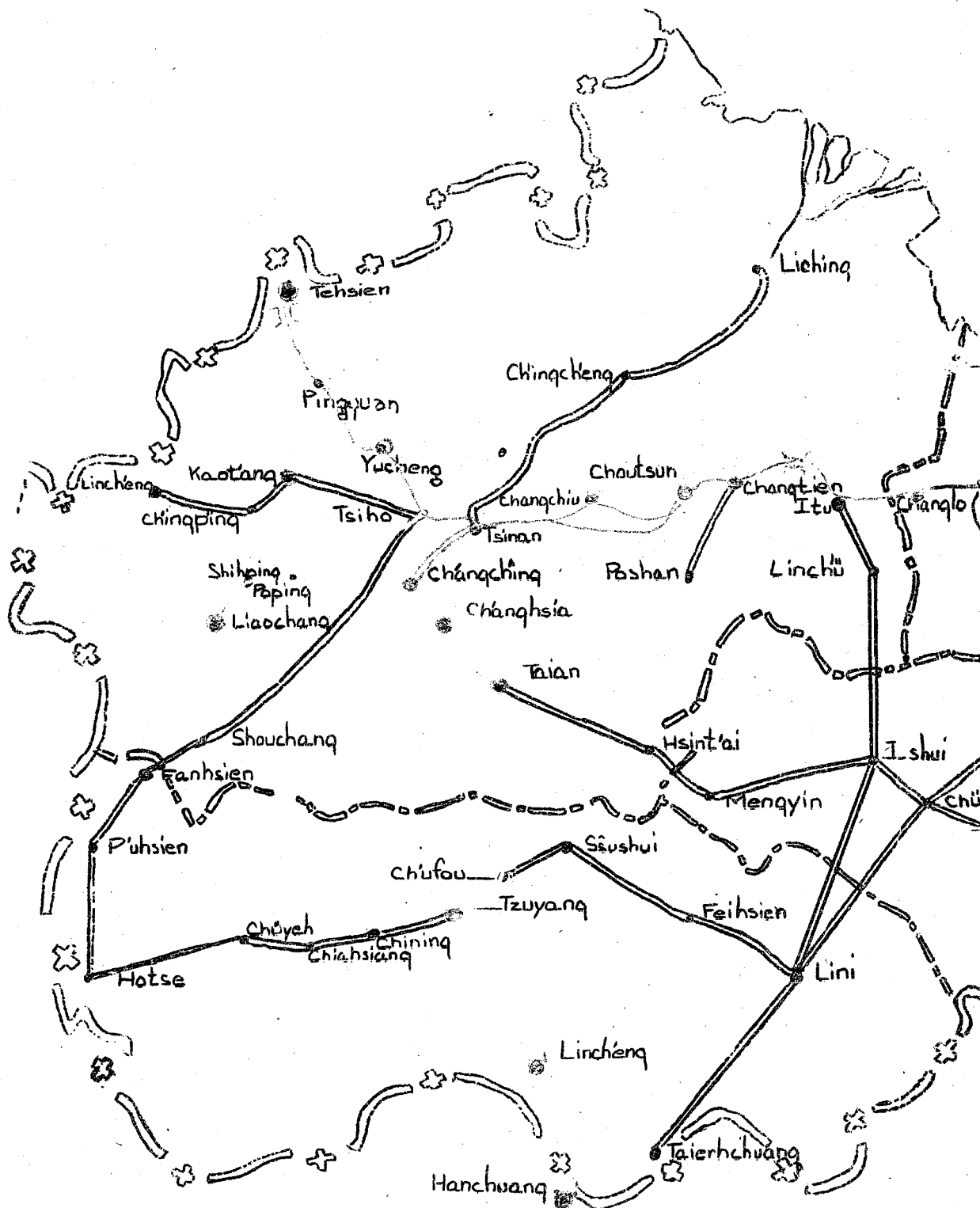
C. The following map is submitted in order to make more graphic the foregoing discussion of Shantung highways:

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Section 1

Note: Section 1 overlaps Section 2)

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Section 2

